

Amendments to the Claims:

Please amend the claims as follows:

1. (Currently amended): An irrigation system for fertilizing soil through a water flowline and a sprinkler head, comprising:
 - a reservoir for holding an additive;
 - a pump connected to an outlet of the reservoir, which injects the additive into the flowline;
 - at least one sensor that monitors ~~a~~ at least one characteristic of the additive; and
 - a feedback control system that reads data from the sensor and controls the flow rate of the additive through the pump.
2. (Original): The system of claim 1, wherein the sensor is adapted to be positioned in the flowline.
3. (Original): The system of claim 2, wherein the sensor comprises a flow meter adapted to be positioned in the flowline.
4. (Original): The system of claim 2, wherein the sensor comprises a pH sensor adapted to be positioned in the flowline.
5. (Original): The system of claim 1, wherein the sensor comprises a fluid level sensor adapted to be positioned in the reservoir.
6. (Original): The system of claim 1, wherein the sensor comprises a soil sensor adapted to be embedded in a soil sample.
7. (Canceled).

8. (Currently amended): A method for fertilizing soil, comprising:

- (a) flowing water through a flowline;
- (b) pumping an additive directly into the flowline, ~~wherein the additive mixes with the water; and~~ and mixing the additive with the water in the flowline;
- (c) spraying ~~the~~ an additive and water mixture through a sprinkler head;
- (d) sensing at least one characteristic of the additive;
- (e) transmitting the characteristic through a feedback loop; and
- (f) varying the pumping flow rate in response to the characteristic.

9. (Currently amended): ~~The method of claim 8, further comprising sensing at least one characteristic of the additive, and transmitting feedback data to control the rate of additive into the flowline.~~ The method of claim 8, wherein the sensing comprises determining at least one characteristic of the additive and water mixture.

10. (Currently amended): The method of claim 98, wherein the sensing comprises determining a flow rate of the additive and water mixture in the flowline.

11. (Currently amended): The method of claim 98, wherein the sensing comprises determining a pH level of the additive and water mixture in the flowline.

12. (Canceled).

13. (Currently amended): The method of claim 98, wherein the sensing comprises determining the additive composition in a soil sample.

14. (Currently amended): The method of claim 98, wherein the pumping comprises pumping the additive from a reservoir directly into the flowline, and wherein the sensing comprises determining a fluid level of the additive in the reservoir.

15. (Currently amended): The method of claim 98, wherein the sensing comprises reading the feedback data in increments of 50 milliseconds or more.

16. (Original): The method of claim 8, wherein the pumping comprises pumping at a flow rate range of 0-150 gallons per hour.

17. (Original): The method of claim 8, wherein the pumping comprises rotating a progressive cavity pump rotor and pumping the additive into the flowline at a constant flow rate per revolution of the rotor.

Claims 18-20 (Canceled).